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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,160	12/15/2003	Jung-Hoe Kim	030681-597	2075

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EXAMINER	
VO, HUYEN X	

ART UNIT	PAPER NUMBER
2626	

NOTIFICATION DATE	DELIVERY MODE
10/16/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/734,160	KIM ET AL.	
	Examiner	Art Unit	
	HUYEN X. VO	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 6/2/2008, with respect to election/restrictions requirement have been fully considered and are persuasive. The election/restrictions requirement has been withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-6, 9-10, 21, 24-26, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (USPN 7191136) in view of Rose et al. (USPN 6947886).

4. Regarding claims 1 and 6, Sinha et al. disclose a method (*the method is employed in the apparatus of figure 4*) and apparatus (*figure 4*) of encoding digital data, the method comprising:

bandwidth-extension-encoding the digital data (*input signal in figure 4*), outputting bandwidth-limited data (*LPF 402 in figure 4 produces a band-limited signal*), and generating bandwidth extension information (*nonlinear model parameters 408 in fig. 4*);

encoding the bandwidth-limited data (*Standard PAC Coding 410 in figure 4*); and

multiplexing the encoded bandwidth-limited data and the bandwidth extension information (*col. 8, lines 10-35, multiplexing the encoded data with the LP filter coefficients generated for the high-band signal*).

Sinha et al. fail to specifically disclose encoding the bandwidth-limited data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate. However, Rose et al. teach encoding the bandwidth-limited data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate (*col. 5, lines 60 to col. 6, line 48 and/or referring to figures 3-4; showing base-layer and enhancement layer*).

Since Sinha et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by replacing the standard PAC coding (410 in figure 4) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

5. Regarding claims 21 and 26, Sinha et al. disclose an apparatus (*figure 4*) for encoding audio data, the apparatus comprising:

bandwidth extension encoder that bandwidth-extension-encodes the audio data (*input signal in figure 4*), outputs bandwidth-limited audio data (*LPF 402 in figure 4 produces a band-limited signal*), and generates bandwidth extension information (*nonlinear model parameters 408 in fig. 4*);

encoder for encoding the bandwidth-limited audio data (*Standard PAC Coding 410 in figure 4*); and

multiplexer that multiplexes the encoded bandwidth-limited audio data and the bandwidth extension information (*col. 8, lines 10-35, multiplexing the encoded data with the LP filter coefficients generated for the high-band signal*).

Sinha et al. fail to specifically disclose encoding the bandwidth-limited audio data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate. However, Rose et al. teach encoding the bandwidth-limited audio data into a hierarchical structure having a base layer and at least one enhancement layer so as to control a bit rate (*col. 5, lines 60 to col. 6, line 48 and/or referring to figures 3-4; showing base-layer and enhancement layer*).

Since Sinha et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by replacing the standard PAC coding (410 in figure 4) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

6. Regarding claims 4, 9, 24, and 29, the combination of Sinha et al. and Rose et al. (*by replacing the standard PAC coder (410 of figure 4) of Sinha et al. with the coder (the operation of figure 4) of Rose et al., as discussed in claims 1 and 6*) further disclose wherein the encoded bandwidth-limited data and the bandwidth extension information is multiplexed (*end result of figure 4 of Sinha et al.*) in such an order that a portion of the

encoded bandwidth-limited data corresponding to the base layer is located (*the operation of figure 4 of Rose et al., which is replacing the PAC coder 410 in figure 4 of Sinha et al.*), the bandwidth extension information is located (*non-linear model parameters 408 in figure 4 of Sinha et al.*), and portions of the bandwidth-limited data corresponding to the remaining enhancement layers are located (*the operation of figure 4 of Rose et al., which is replacing the PAC coder 410 in figure 4 of Sinha et al.*).

Since Sinha et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by replacing the standard PAC coding (410 in figure 4) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

7. Regarding claims 5, 10, and 25, the combination of Sinha et al. and Rose et al. (*by replacing the standard PAC coder (410 of figure 4) of Sinha et al. with the coder (the operation of figure 4) of Rose et al., as discussed in claims 1 and 6*) further disclose wherein the encoded bandwidth-limited data and the bandwidth extension information is multiplexed (*end result of figure 4 of Sinha et al.*) in such an order that the bandwidth extension information is located (*non-linear model parameters 408 in figure 4 of Sinha et al.*), a portion of the encoded bandwidth-limited data corresponding to the base layer is located (*the operation of figure 4 of Rose et al., which is replacing the PAC coder 410 in figure 4 of Sinha et al.*), and portions of the bandwidth-limited data corresponding to

the remaining enhancement layers are located (*the operation of figure 4 of Rose et al., which is replacing the PAC coder 410 in figure 4 of Sinha et al.*).

Since Sinha et al. and Rose et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by replacing the standard PAC coding (410 in figure 4) with the coder (in figure 4) of Rose et al. in order to improve bit rates while preserving signal quality.

8. Claims 2-3, 7-8, 11-20, 22-23, 27-28, and 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (USPN 7191136) in view of Rose et al. (USPN 6947886), and further in view of Geiger et al. (USPN 7343287).

9. Regarding claims 2, 7, 22, and 27, Sinha et al. further disclose wherein the encoding comprises: encoding side information corresponding to the base layer (*referring to table 6, these are side information encoded in the header; and/or referring to col. 7, lines 1-67*), but fail to specifically disclose bit-sliced-encoding a plurality of quantization samples corresponding to the base layer; and repeating the encoding and bit-sliced-encoding for a next enhancement layer until a plurality of predetermined layers are completely encoded. However, Geiger et al. teach bit-sliced-encoding a plurality of quantization samples corresponding to the base layer (*col. 3, line 59 to col. 4, line 25, BSAC or bit sliced arithmetic coding; and/or referring to elements 102 and 606 in figure 6; encoding each individual sub-scaling layer within a layer among a*

plurality of layers); and repeating the encoding and bit-sliced-encoding for a next enhancement layer until a plurality of predetermined layers are completely encoded (*col. 3, line 59 to col. 4, line 25, BSAC or bit sliced arithmetic coding; and/or referring to elements 102 and 606 in figure 6; encoding each individual sub-scaling layer within a layer among a plurality of layers*).

Since Sinha et al. and Geiger et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by incorporating the teaching of Geiger et al. in order to improve coding efficiency.

10. Regarding claims 3, 8, 23, and 28, the modified Sinha et al. fail to specifically disclose wherein the encoding comprises: encoding side information containing scale factor information and coding model information corresponding to the base layer; bit-sliced-encoding a plurality of quantization samples corresponding to the base layer with reference to the coding model information; and repeating the encoding and bit-sliced-encoding for a next enhancement layer until a plurality of predetermined layers are completely coded. However, Geiger et al. further teach encoding side information containing scale factor information and coding model information corresponding to the base layer (*col. 1, lines 37-44*); bit-sliced-encoding a plurality of quantization samples corresponding to the base layer with reference to the coding model information (*col. 3, line 59 to col. 4, line 25, BSAC or bit sliced arithmetic coding; and/or referring to elements 102 and 606 in figure 6; encoding each individual sub-scaling layer within a*

layer among a plurality of layers); and repeating the encoding and bit-sliced-encoding for a next enhancement layer until a plurality of predetermined layers are completely coded (*col. 3, line 59 to col. 4, line 25, BSAC or bit sliced arithmetic coding; and/or referring to elements 102 and 606 in figure 6; encoding each individual sub-scaling layer within a layer among a plurality of layers*).

Since Sinha et al. and Geiger et al. analogous art because they are from the same field of endeavor, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Sinha et al. by incorporating the teaching of Geiger et al. in order to improve coding efficiency.

11. Regarding claims 11-20 and 30-37, the modified Sinha et al. fail to specifically disclose a decoding method/apparatus. However, Geiger et al. teach a decoder (*figure 7*). The operation of claims 11-20 and 30-37 is only a reverse or mirror-image operation of claims 1-10 and 21-29. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to readily realize that the decoding operation is only a mirror image or a reversed operation of the encoder. One of ordinary skill in the art would have been able to design a decoder complementary to the claimed encoder in order to decode the encoded signal.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Faroudja (USPN 7310370) is considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUYEN X. VO whose telephone number is (571)272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huyen X Vo/ 10/3/2008
Primary Examiner, Art Unit 2626